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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/198,376	11/24/1998	AKIRA OKAMOTO	NU-98035	2418

30743 7590 03/20/2002

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EXAMINER	
FLANIGAN, ALLEN J	
ART UNIT	PAPER NUMBER
3743	

DATE MAILED: 03/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/198,376	OKAMOTO ET AL.	
	Examiner	Art Unit	
	Allen J. Flanigan	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-6,26,27 and 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6,26,27 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4, 26, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokai #1-229800 to Genshiro in view of Urushibara et al. and Van Buskirk.

Genshiro teaches the use of a thermochromic layer to control to automatically control temperature via temperature-dependent emission of radiation using a superconducting material coating which has electrically conductive, thermally insulative properties at low temperatures and electrically insulative, thermally emissive properties at higher temperatures (see Fig. 2 in particular, plotting emissivity vs. temperature for the superconducting material). Although Genshiro does not expressly show the radiating board employed with a satellite, it is clearly suggested as a possible use of the disclosed device.

Urushibara et al. disclose a transistion metal La_{1-x} Sr_x MnO_3 superconducting material that exhibits a transition between conductive and nonconductive (electrically speaking) at a certain temperature range. Van Buskirk explicitly recognizes the "close relation" between electrical conductance and optical properties of transition metal oxides (see lines 47-52 of column 1). Thus, the prior art teaches the basic mechanism of automatic temperature control via variable emissivity claimed, and recognizes the suitable properties of the specific materials claimed. It would therefore be *prima facie* obvious to use

the claimed material as the material for layer 13 of Genshiro. See MPEP § 2144.07.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al. in view of Urushibara et al. and Van Buskirk.

The teachings of Benson et al. have been discussed extensively in the prosecution of this application. Basically, Benson et al. teaches a thermochromic material (vanadium oxide is one example, but the disclosure is not limited thereto, and explicitly suggests that other materials would be suitable) which "changes from the emissive, electrically insulating state to the non-emissive, metallic state as a function of temperature. When it is hot, it becomes more emissive, and when it cools, it becomes less emissive" (lines 22-25 of col. 13, *cf* the language of claim 26). This layer 170 is applied to an object (sidewall 12 of panel 10) and effectively controls its temperature by controlling the amount of radiation emitted to sidewall 14 in dependence on the temperature of sidewall 12.

Urushibara et al. disclose a transistion metal La_{1-x} Sr_x MnO_3 superconducting material that exhibits a transition between conductive and nonconductive (electrically speaking) at a certain temperature range. Van Buskirk explicitly recognizes the "close relation" between electrical conductance and optical properties of transition metal oxides (see lines 47-52 of column 1). Thus, the prior art teaches the basic mechanism of automatic temperature

control via variable emissivity claimed, and recognizes the suitable properties of the specific materials claimed. It would therefore be *prima facie* obvious to use the claimed material as the material for layer 13 of Genshiro. See MPEP § 2144.07.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Genshiro in view of Urushibara et al. and Buskirk as applied to claim 4 above, and further in view of Amore.

Please see the comments made in regard to the teachings of Amore in the office action mailed 12/15/1999. To add a selectively reflective coating to the radiation device of Genshiro would have been obvious.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al. in view of Urushibara et al. and Buskirk as applied to claim 4 above, and further in view of Amore.

Please see the comments made in regard to the teachings of Amore in the office action mailed 12/15/1999. To add a selectively reflective coating to the radiation device of Benson et al. would have been obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (703) 308-1015. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on (703) 308-0101. The

fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

Allen J. Flanigan
Primary Examiner
Art Unit 3743

AJF
March 18, 2002